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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/486,018	05/30/2000	HEINER BECKER	BECKER-4	2691

20151 7590 06/05/2002

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EXAMINER	
STAICOVICI, STEFAN	
ART UNIT	**PAPER NUMBER**
1732	10

DATE MAILED: 06/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/486,018	Applicant(s) BECKER, HEINER	
	Examiner Stefan Staicovici	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 July 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 May 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 2, line 2, after "other", "parameter" should be replaced with --parameters--.

Appropriate correction is required.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "13" (page 11, line 9) and "30', 31' " (page 12, line 1). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "30" has been used to designate both an "outlet" (page 12, line 1) and a "hot runner block" (page 12, line 11). Further, reference character "31" has been used to designate both an "outlet" (page 12, line 1) and an "adjustment nozzle" (page 12, line 12). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to because it is unclear which cross-section of Figure 4 does Figure 5 represent. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim11 is rejected under 35 U.S.C. 102(b) as being anticipated by Gutjahr (US Patent No. 5,074,772).

Gutjahr ('772) teaches the claimed injection mold nozzle including a body member (11) having two interconnected outlets (24, 25, 28, 29) and check valves (30, 31, 32, 33) operating in opposite directions (see Figure 2).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ibar (US Patent No. 5,543,092) in view of Allan *et al.* (US Patent No. 5,160,466).

Ibar ('092) teaches the basic claimed injection molding process including, providing a multiple feeder system, feeding a first polymeric material into a mold cavity such that a shell

(skin) forms due to cooling of said first material and then feeding a second material, different from said first material, into said mold cavity (see col. 16, lines 3-21). Further, Ibar ('092) teaches controlling the rheological properties of an injected molten material by applying a repetitive shear stress to said material (material moved during solidification) (col. 6, lines 13-33). Furthermore, Ibar ('092) teaches that by moving said second material increased penetration of said second material occurs and that throughout the entire process the repetitive pattern may be intermittent (col. 16, lines 25-30 and 45-48), hence it not be applied. It is submitted that application of a shear stress provides for a reduced viscosity, hence improved flowability and as such improved penetration. It is submitted that Ibar ('092) as a whole includes teachings of applying a shear stress only to injecting of said second material in order to generate enhanced penetration of said second material.

Regarding claim 1, Ibar ('092) does not teach a second opening. Allan *et al.* ('466) teach an injection molding process including, applying a repetitive shear stress to a molten plastic material injected into a mold by allowing a portion of said molten material to overflow through a second opening and reversing the application of said shear stress. Therefore, it would have been obvious for one of ordinary skill in the art to have provided a second opening to allow the molten material to overflow during application of a repetitive shear stress as taught by Allan *et al.* ('466) in the process of Ibar ('092) because, Allan *et al.* ('466) specifically teach that such a procedure allows for improved molecular orientation and packing pressure and also because, both references teach similar materials and processes (see col. 3, line 58 through col. 4, line 15).

In regard to claim 2, Ibar ('092) teaches applying a compressive force, hence varying the hydrostatic pressure (see col. 6, line 20 and col. 12, lines 35-38).

Specifically regarding claims 3-5, Ibar ('092) teaches applying said shear stress by providing an electromagnetic field, a mechanical vibration (ultrasound) or hydrostatic pressure (melt pump) (see col. 5, lines 43-48 and col. 6, lines 13-30).

Regarding claim 10, Ibar ('092) teaches a plurality of feeding accumulators, hence it is submitted that the teachings of Ibar ('092) as a whole show injecting a plurality of polymer layers (see col. 6, lines 33-38).

9. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ibar (US Patent No. 5,543,092) in view of Alan *et al.* (US Patent No. 5,160,466) and in further view of Bertschi *et al.* (US Patent No. 5,798,069).

Ibar ('092) in view of Allan *et al.* ('466) teach the basic claimed process as described above.

Regarding claim 7, Ibar ('092) in view of Allan *et al.* ('466) do not teach placing a reinforcing sheet into the injection mold. Bertschi *et al.* ('069) teach an injection molding process including, placing a reinforcing sheet into the injection mold prior to injecting at least one layer of plastic material into said mold (see Figure 9). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a reinforcing sheet as taught by Bertschi *et al.* ('069) in the mold in the process of Ibar ('092) in view of Allan *et al.* ('466) because, Bertschi *et al.* ('069) teaches such a reinforcing sheet in a sandwich type molding structure as taught by Ibar ('092) and also due to a variety of advantages that a reinforcing sheet provides such as, improved strength, solvent resistance, aesthetics, etc.

In regard to claims 8 and 9, Ibar ('092) in view of Allan *et al.* ('466) do not teach a partial filling of said mold. by Bertschi *et al.* ('069) teach an injection molding process including a first

and a second polymeric material including, providing a partitioning wall (260) which divides the mold cavity, hence allowing to partially fill said mold cavity with said first material and subsequently filling remaining portion of said mold cavity with said second material (see Figures 11 and 12). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a partitioning wall as taught by Bertschi *et al.* ('069) in the mold in the process of Ibar ('092) in view of Allan *et al.* ('466) because, Bertschi *et al.* ('069) specifically teach that such an arrangement forms a molded object having abutting halves of different materials, hence improving process versatility.

10. Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allan *et al.* (US Patent No. 5,851,474) in view of Ibar (US Patent No. 5,543,092).

Allan *et al.* ('474) teach the basic claimed injection molding process including, providing a multiple feeder system, a mold having a cavity therein and a plurality of openings that permit overflow (see Figure 7), feeding a first and a second polymeric material into a mold cavity and applying periodic forces using pistons (C1, d1, E1, F1) to said first and second polymeric materials while said materials are cooling (moved during solidification) in said mold such as to impose molecular orientation.

Regarding claim 1, Allan *et al.* ('474) do not teach moving only said second material. Ibar ('092) an injection molding process including, providing a multiple feeder system, feeding a first polymeric material into a mold cavity such that a shell (skin) forms due to cooling of said first material and then feeding a second material, different from said first material, into said mold cavity (see col. 16, lines 3-21). Further, Ibar ('092) teaches controlling the rheological properties of an injected molten material by applying a repetitive shear stress to said material (material

moved during solidification) (col. 6, lines 13-33). Furthermore, Ibar ('092) teaches that by moving said second material increased penetration of said second material occurs and that throughout the entire process the repetitive pattern may be intermittent (col. 16, lines 25-30 and 45-48), hence it not be applied. It is submitted that application of a shear stress provides for a reduced viscosity, hence improved flowability and as such improved penetration. Further, it is submitted that Ibar ('092) as a whole includes teachings of applying a shear stress only to injecting of said second material in order to generate enhanced penetration of said second material. Therefore, it would have been obvious for one of ordinary skill in the art to have provided a shear stress only to said second material as taught by Ibar ('092) in the process of Allan *et al.* ('474) because, Ibar ('092) specifically teaches that such a procedure allows an increased penetration of said second material, hence improving flowability and molecular orientation and also because, both references teach similar materials and processes, and solve similar problems.

In regard to claims 3-5, Ibar ('092) teaches equivalent methods of applying said shear stress by providing an electromagnetic field, a mechanical vibration (ultrasound) or hydrostatic pressure (melt pump) (see col. 5, lines 43-48 and col. 6, lines 13-30). Therefore, it would have been obvious for one of ordinary skill in the art to have applied a shear stress field by providing an electromagnetic field, a mechanical vibration (ultrasound) or hydrostatic pressure (melt pump) as taught by Ibar ('092) in the process of Allan *et al.* ('474) because Ibar ('092) teaches that such methods are equivalent and also because, Allan *et al.* ('474) teach applying periodic forces to a molten plastic material.

Specifically regarding claim 6, Allan *et al.* ('474) teach applying a second plastic material from at least two locations at the same time (see Figure 7).

11. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allan *et al.* (US Patent No. 5,851,474) in view of Ibar (US Patent No. 5,543,092) and in further view of Bertschi *et al.* (US Patent No. 5,798,069).

Allan *et al.* ('474) in view of Ibar ('092) teach the basic claimed process as described above.

Regarding claim 7, Allan *et al.* ('474) in view of Ibar ('092) do not teach placing a reinforcing sheet into the injection mold. Bertschi *et al.* ('069) teach an injection molding process including, placing a reinforcing sheet into the injection mold prior to injecting at least one layer of plastic material into said mold (see Figure 9). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a reinforcing sheet as taught by Bertschi *et al.* ('069) in the mold in the process of Allan *et al.* ('474) in view of Ibar ('092) because, Bertschi *et al.* ('069) teaches such a reinforcing sheet in a sandwich type molding structure as taught by Allan *et al.* ('474) and also due to a variety of advantages that a reinforcing sheet provides such as improved strength, solvent resistance, aesthetics, etc.

In regard to claims 8 and 9, Allan *et al.* ('474) in view of Ibar ('092) do not teach a partial filling of said mold. by Bertschi *et al.* ('069) teach an injection molding process including a first and a second polymeric material including, providing a partitioning wall (260) which divides the mold cavity, hence allowing to partially fill said mold cavity with said first material and subsequently filling remaining portion of said mold cavity with said second material (see Figures 11 and 12). Therefore, it would have been obvious for one of ordinary skill in the art to

have provided a partitioning wall as taught by Bertschi *et al.* ('069) in the mold in the process of Allan *et al.* ('474) in view of Ibar ('092) because, Bertschi *et al.* ('069) specifically teach that such an arrangement forms a molded object having abutting halves of different materials, hence improving process versatility.

12. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gutjahr (US Patent No. 5,074,772) in view of Ibar (US Patent No. 5,543,092).

Gutjahr ('772) teaches the basic claimed injection nozzle as described above.

Regarding claim 12, although Gutjahr ('772) teaches that said injection nozzle is *mounted* (emphasis added) onto a stationary platen (mold), Gutjahr ('772) does not specifically teach that said mounting occurs using a flange. The use of a flange to mount an injection nozzle is notoriously well known in the art as evidenced by Ibar ('092) in which injection nozzle (42) is mounted onto a mold (54) using a flange (see Figure 8). Therefore, it would have been obvious for one of ordinary skill in the art to have provided a flange as taught by Ibar ('092) to mount the injection nozzle of Gutjahr ('772) to an injection molding device (mold) because, Ibar ('092) specifically teaches using a flange to mount a nozzle to a mold and also due to the notoriously well known principle of using a flange for mounting cylindrical components.

13. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gutjahr (US Patent No. 5,074,772) in view of. Bertschi *et al.* (US Patent No. 5,798,069).

Gutjahr ('772) teaches the basic claimed injection nozzle as described above.

Regarding claim 13, Gutjahr ('772) does not teach an injection nozzle movably guided in a block. Bertschi *et al.* ('069) teach an injection molding device including an injection nozzle (36) movably guided and having a channel in fluid communication with melt flow manifold (40)

(block). Therefore, it would have been obvious for one of ordinary skill in the hart to have provided a melt flow manifold (block) in fluid communication with said injection nozzle as taught by Bertschi *et al.* ('069) in the injection nozzle of Gutjahr ('772) because, Bertschi *et al.* ('069) teach that such an arrangement allows for multi-cavity molding, hence increasing productivity.

14. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gutjahr (US Patent No. 5,074,772) in view of. Furasawa *et al.* (US Patent No. 5,017,311).

Gutjahr ('772) teaches the basic claimed injection nozzle as described above.

Regarding claim 14, Gutjahr ('772) does not teach a mold made from a tempered low melting point alloy. Furasawa *et al.* ('311) teaches an injection molding process having a duraluminum mold (see col. 2, line 66 through col. 3, line 2). It is submitted that duraliminum is a tempered low melting point alloy. Therefore, it would have been obvious for one of ordinary skill in the art to have provided a duraluminum mold as taught by Furasawa *et al.* ('311) in the molding device of Gutjahr ('772) because, Furasawa *et al.* ('311) specifically teaches that duraluminum mold is an equivalent alternative to a steel mold and also because both references teach injection molding processes and apparatus.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Staicovici, Ph.D. whose telephone number is (703) 305-

0396. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM and alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jan H. Silbaugh, can be reached at (703) 308-3829. The fax phone number for this Group is (703) 305-7718.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Stefan Staicovici, PhD

Stefan Staicovici

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June 1, 2002